GIS Deployment Analysis Tools: Existing Tools, Needed Improvements, and Gaps in Available Tools

ECAI Web Forum Summary – January 23, 2007

The ECAI Planning Committee presented "GIS Deployment Analysis Tools: Existing Tools, Needed Improvements, and Gaps in Available Tools" on January 23, 2007.

Opening remarks were made by Darrell Beschen of Planning, Budget, and Analysis (PBA) at DOE's Office of Energy Efficiency and Renewable Energy (EERE); and Karlynn Cory, from the National Renewable Energy Laboratory (NREL), presented the speakers.

During the Web forum, three presenters addressed how their organizations are using GIS tools for analysis of energy deployment opportunities. Speakers included:

Rich Halvey – "GIS Energy Analysis Activities of the Western Governors' Association"

Dora Yen Nakafugi and Elaine Sison-Lebrilla – "GIS Energy Analysis Activities of the California Energy Commission"

Gian Porro – "GIS Energy Analysis Activities of the National Renewable Energy Laboratory"

They addressed the following questions:

1. What questions on energy technology deployment are you answering with your GIS analyses (please distinguish between internal questions and those asked by policy makers, if applicable)?
2. What specific GIS analyses is your organization performing to answer these questions?
3. How do you effectively share your GIS analysis results with decision makers and the private sector in order to influence deployment decisions?
4. Is there a need for improvements in existing GIS data, information and/or tools?

The presentations, which can be accessed at http://www.nrel.gov/analysis/collab_analysis/events_archive.html, were followed by a group discussion on the use of GIS tools across participating organizations, on common analysis assumptions and methodologies, and the potential for teaming to improve GIS tools, methods, and analysis.

Questions for the facilitated discussion included:

1. What do you see as the priorities for additional improvements in existing GIS data, information and/or tools that are needed?
2. Are there opportunities for collaborating on common data, better GIS inputs, or improvements to methodologies that will improve GIS tools?

3. Is there an interest in continuing to share information and GIS tools for energy analysis? If so, how could this be done most effectively

The facilitated discussion included an opportunity for participants to ask questions, talk about their experiences, and share additional information. The dialogue is outlined below:

1) What do you see as priorities?
   a) Better collection of information (validation); reducing uncertainty
   b) Make sure to identify where synergy sets are, which will help generate more useful depictions
   c) Weak in biomass resources; specifically planned are more variable; crops for biomass are difficult to model; wind and higher altitude technology changing and challenging
   d) Get good transmission data and loading that is credible
   e) Request for higher resolution
   f) Take advantage of data merge from different resources. How do we set up communication and financing to come up with useful combinations. Is the challenge in that the data is not in same format? More often it's the scale of the data. How do we use data created for our purpose? Sharing of information needs to accommodate individual needs. Understanding original use of data needs to be put in users manual. How can it be used? When GIS information is distributed they obtain a medi-data record. Data is sometimes from the outside. Need to document what the use should be.

2) Are there opportunities for collaborating?
   a) We need to respond to the public and make information available; provide different levels of information for users; Web-based capability; tracking information—where to put information; resource management problem
   b) There should be one Web site to go to for most current resource load/land use data so we are all knowledgeable about most recent datasets. As one agency, funding is a limitation; to achieve is big task; inventory full-time position; different agency each needs contact information; counties have different needs/not consistent
   c) The Western Governors' Association (WGA) is reliant on everyone else; problem—where something resides and who's done what – it's a treasure hunt to find out. Need to have a place where agencies can post information or GIS data so you know where to start
   d) Format is a problem; huge datasets; try to get it on the Web; biomass is "beefed up;"
   e) Why are we generating the information and what is it going to be used for? Agencies are directed by higher-level policy makers; how do you make system more responsive to collection of information?
   f) Across the United States, gathering and managing of information is being "de-funded" compared to 50s-60s. More fragmented; people are willing to pay for analysis, but not underlying infrastructure; GIS images are compelling—hard to

retract; disconnect somewhere. Some get data from commercial source; intellectual properties; detailed maps off Web site

g) Transmission data is part of infrastructure protection requirements. Big source of debate: Is there an organization (GIS people) that sets standards of what is workable in a dataset? Yes, a number of federal organizations are coordinating GIS standards.

3) Is there an interest in continuing to share information and GIS tools?
   a) Most of the time, looking for information is like going on a "treasure hunt" – having a good place to start would be helpful
   b) Although not a GIS user directly, having a central location or starting point would be good. Is there a way to post "treasure hunt" to save time and not repeat same treasure hunt
   c) Central portal concept – tied to funding; states do survey to see what they have in-house; each state have achieve base to go on; starting point; national not recognized; but state recognized; develop directory, then contacts
   d) In lieu of funding: An option might be to develop open source attitude where states can have own medi-data on sites, as information collected, people can make changes or accepted as appropriate
   e) Collaboration: Individual states to work appropriate for which resources work for them; California might go to border states to see what they have planned; EPA worried about national game plan with abatement; managing ways to reduce air quality; potential national cities; look for strategy approach; state take advantage of adjacent resources (national basis)